



Commercial
Refrigerator & Freezer
Service Manual

Solid Door

Model No. : MSR-23NM
MSR-49NM
MSF-23NM
MSF-49NM

Glass Door

Model No. : MSR-23G-1
MSR-49G-2

TABLE OF CONTENTS

1. FEATURE CHART

- 1-1. FRONT VIEW(MSF-49NM)
- 1-2. SIDE VIEW(MSF-49NM)
- 1-3. FRONT VIEW(MSR-49G-2)
- 1-4. SIDE VIEW(MSR-49G-2)

2. WIRING DIAGRAM

- 2-1. REFRIGERATOR : MSR-23NM, MSR-49NM
MSR-23G-1, MSR-49G-2
- 2-2. FREEZER : MSF-23NM, MSF-49NM

3. PART DETAILS

- 3-1. TOP PANEL
- 3-2. COMPRESSOR COMPARTMENT
- 3-3. DOOR
- 3-4. COOLING COMPARTMENT

4. MAIN COMPONENTS

- 4-1. COMPRESSOR
- 4-2. POWER RELAY(COMP. RELAY)
- 4-3. CONDENSER DRYER
- 4-4. COMPRESSOR CAPACITOR
- 4-5. EVAPORATOR FAN MOTOR
- 4-6. CONDENSER FAN MOTOR
- 4-7. EVAPORATOR DEFROST HEATER
- 4-8. LAMP BULB
- 4-9. MAIN PCB
- 4-10. DISPLAY PCB
- 4-11. BALLAST

5. ELECTRONIC CONTROL INSTRUCTIONS

- 5-1. FREEZER CONTROL
 - 5-1-1. HOW TO USE THE DISPLAY PCB PANEL
 - 5-1-2. MANUAL DEFROST
 - 5-1-3. FUNCTION TABLE
 - 5-1-4. ERROR CODE TABLE
- 5-2. REFRIGERATOR CONTROL
 - 5-2-1. HOW TO USE THE DISPLAY PCB PANEL
 - 5-2-2. FUNCTION TABLE
 - 5-2-3. ERROR CODE TABLE

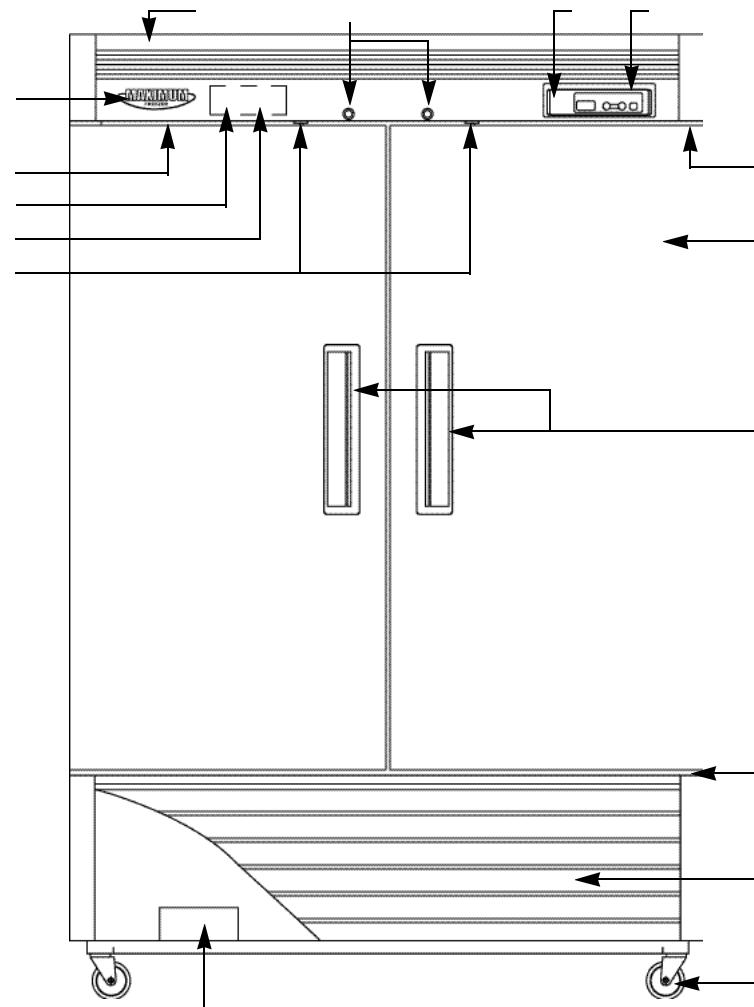
6. REPLACEMENT OF MAIN COMPONENTS

- 6-1. TOP PANEL PARTS
- 6-2. REPLACING DOOR
- 6-3. DOOR SPRING ADJUSTMENT
- 6-4. REVERSIBLE-DOOR ASSEMBLING METHOD
- 6-5. REFRIGERATION COMPARTMENT PARTS
- 6-6. CONDENSING UNIT
- 6-7. LIGHTING-PARTS

7. PART-LIST

1 FEATURE CHART

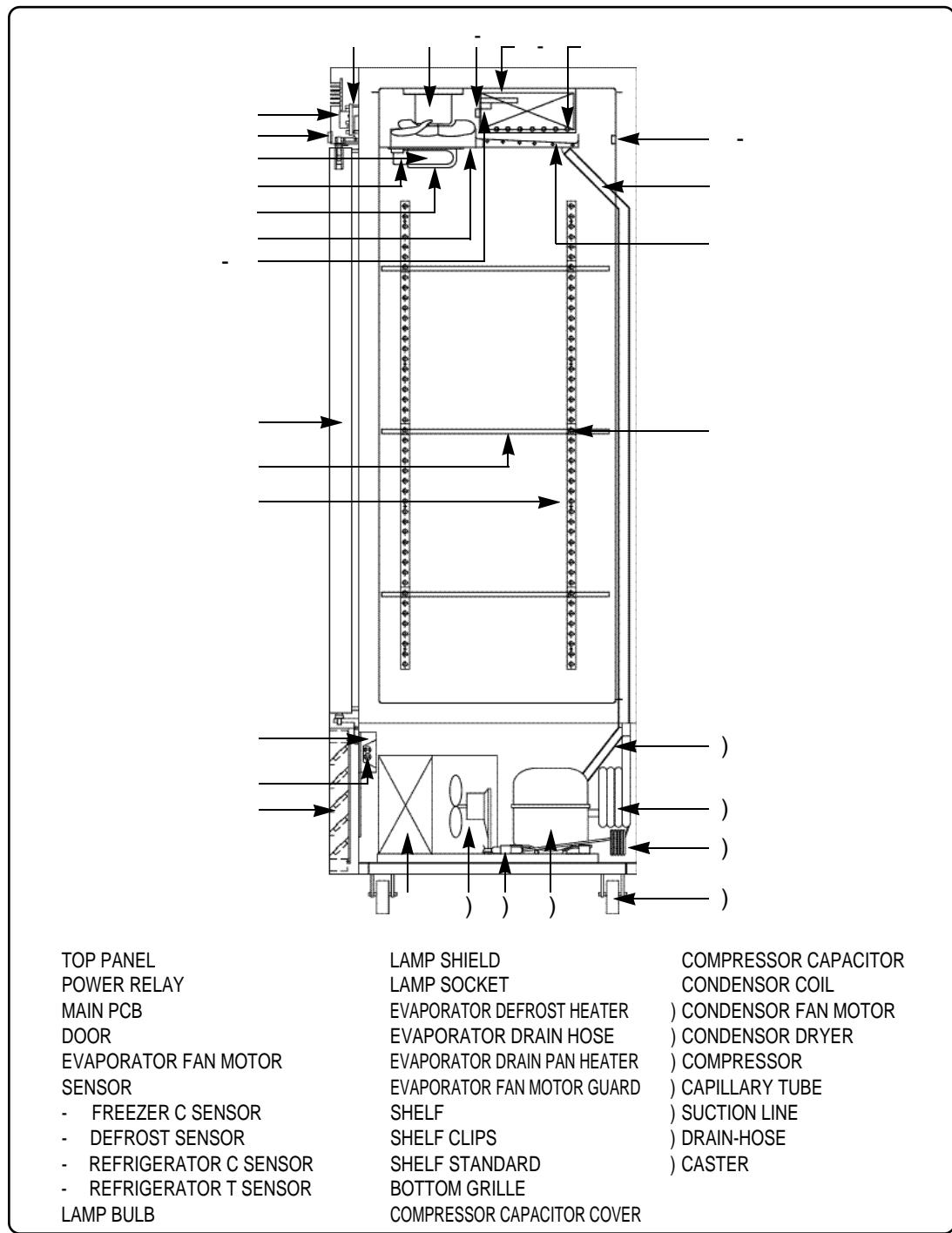
1-1. FRONT VIEW(MSF-49NM)



- | | |
|-------------------------|--------------------|
| TOP PANEL | FREEZER BRAND LOGO |
| DOOR SWITCH | DOOR HINGE TOP |
| POWER SWITCH | DOOR |
| DOOR LOCK | DOOR HANDLE |
| MAIN PCB | DOOR HINGE BOTTOM |
| POWER RELAY(COMP.RELAY) | BOTTOM GRILLE |
| DISPLAY PCB | CASTER |
| CONTROL BOARD HOUSING | DRAIN PAN |

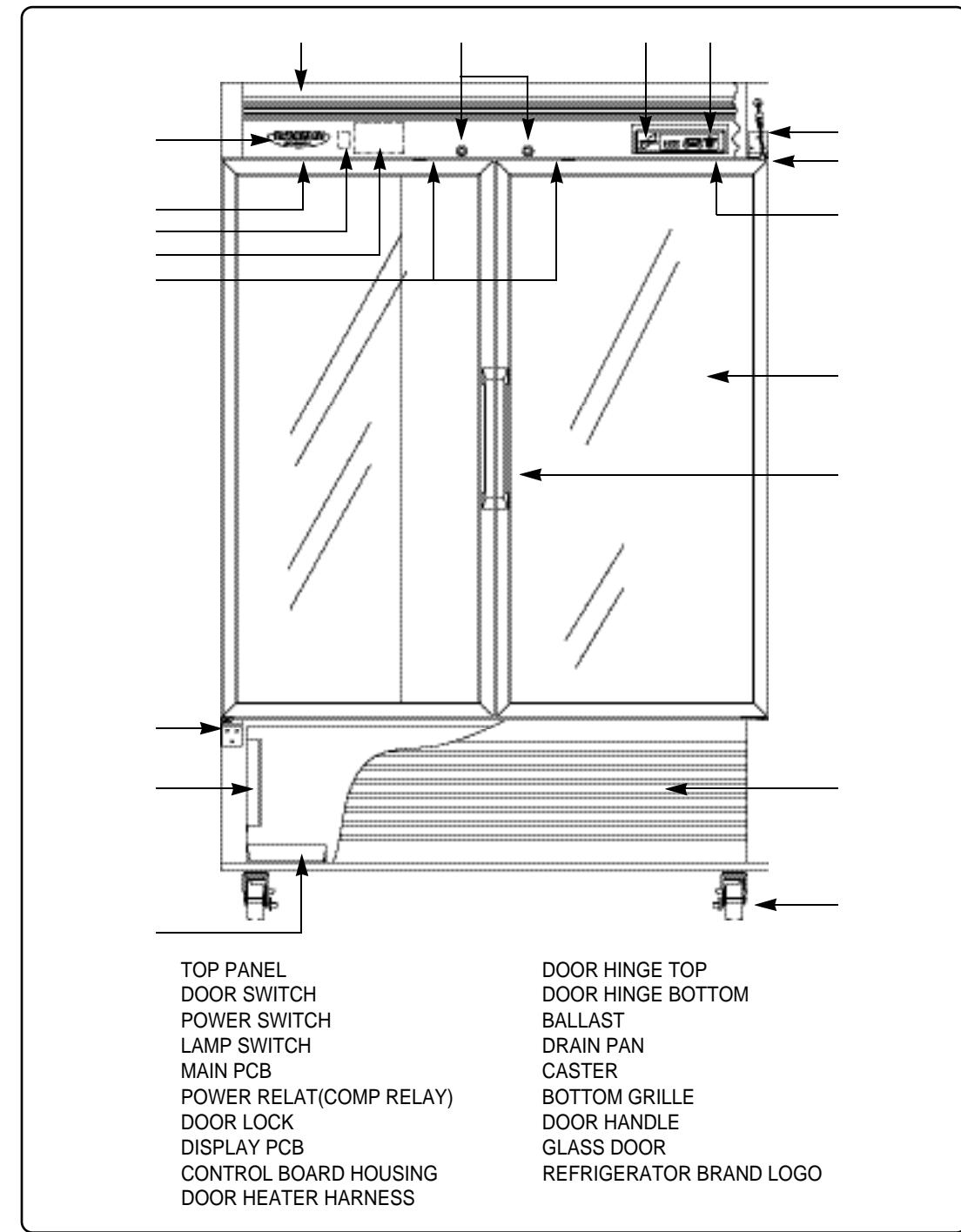
FEATURE CHART

1-2. SIDE VIEW(MSR-49NM)



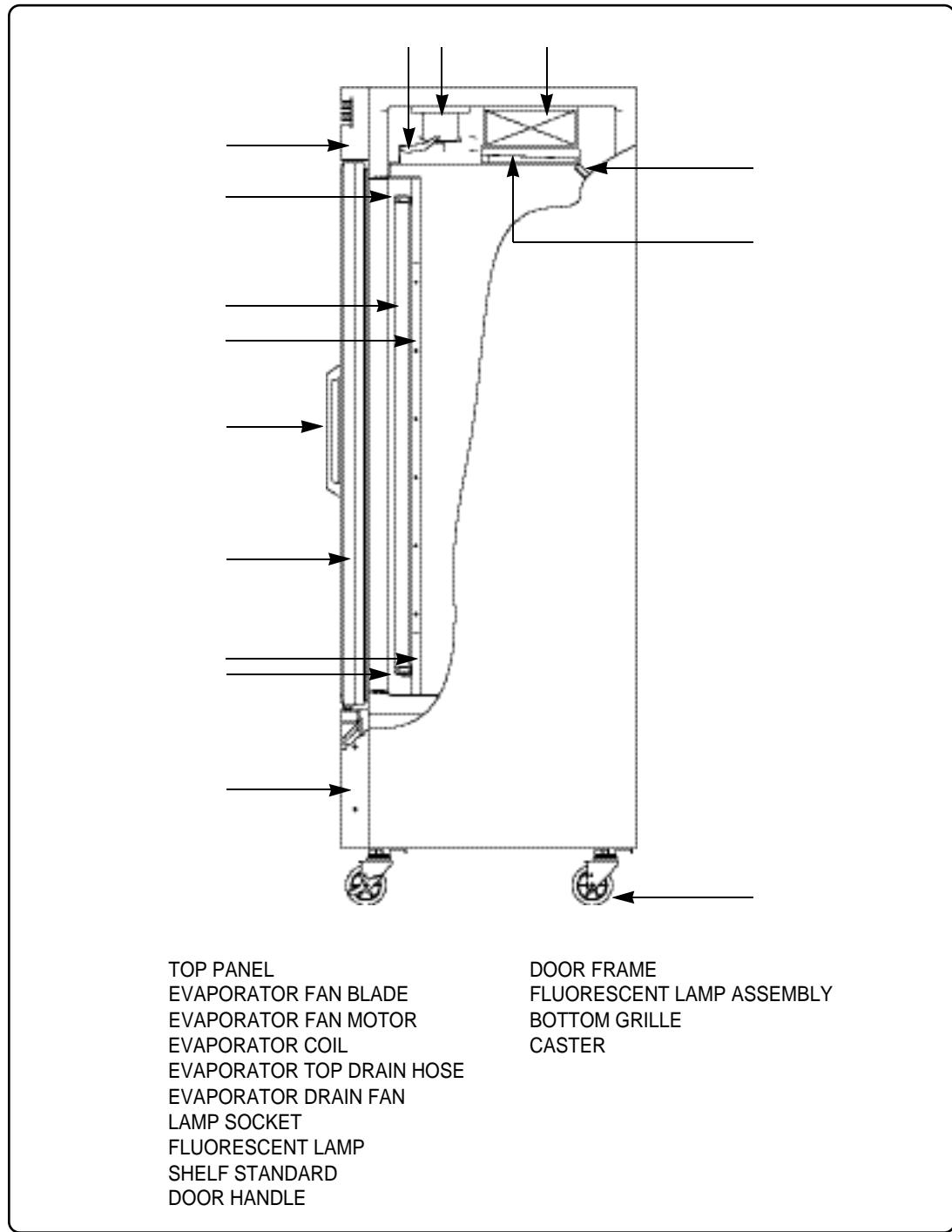
FEATURE CHART

1-3. FRONT VIEW(MSR-49G-2)



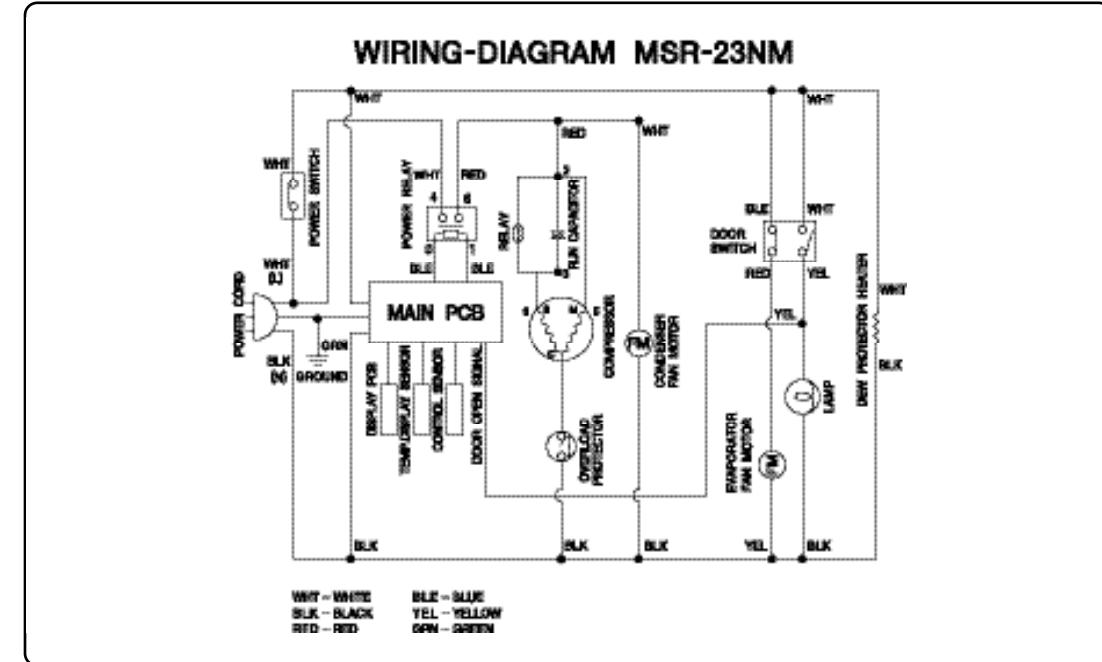
FEATURE CHART

1-4. SIDE VIEW(MSR-49G-2)

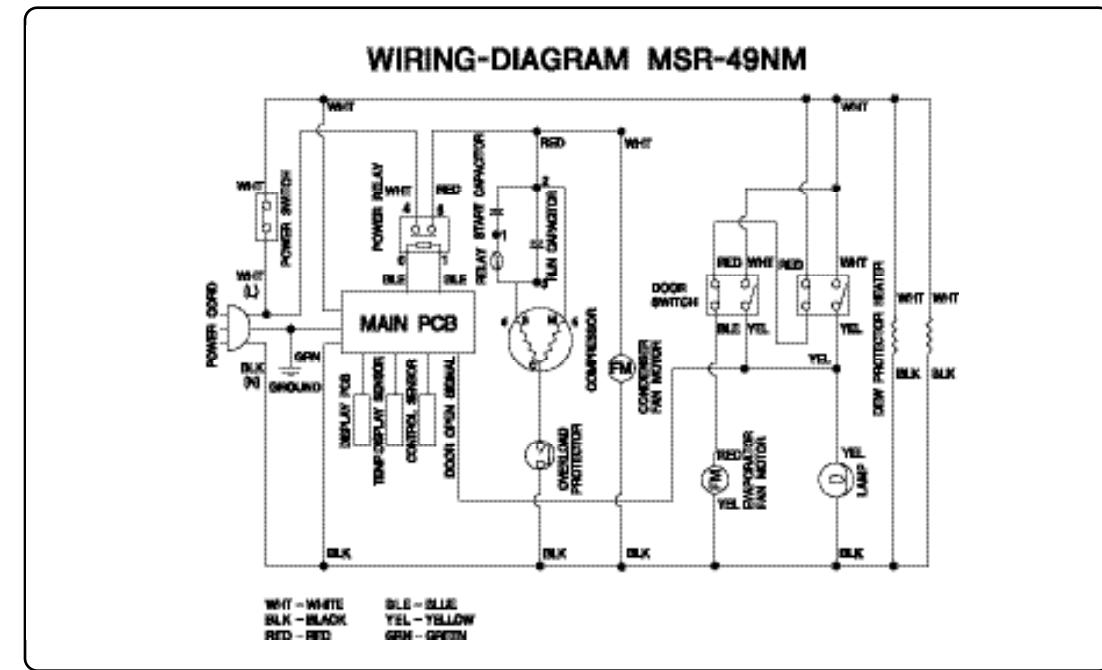


2 WIRING DIAGRAM

2-1. REFRIGERATOR
MSR-23NM



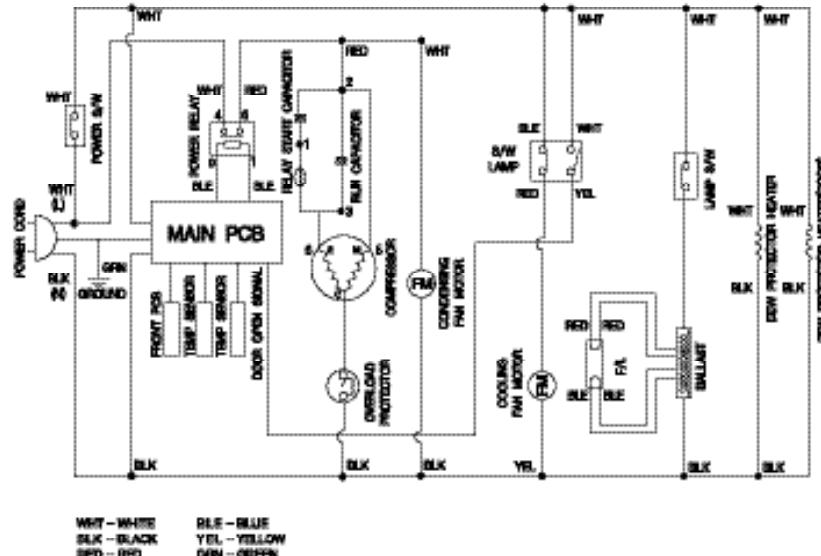
MSR-49NM



WIRING DIAGRAM

MSR-23G-1

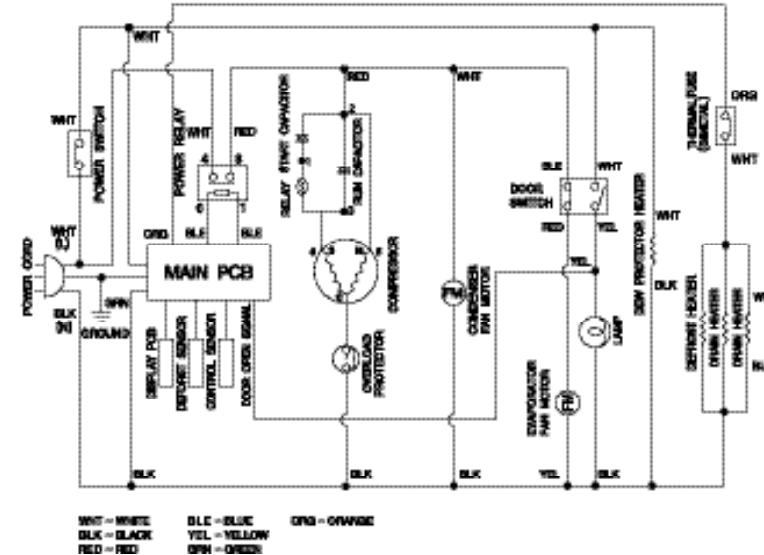
WIRING-DIAGRAM MSR-23G-1



WIRING DIAGRAM

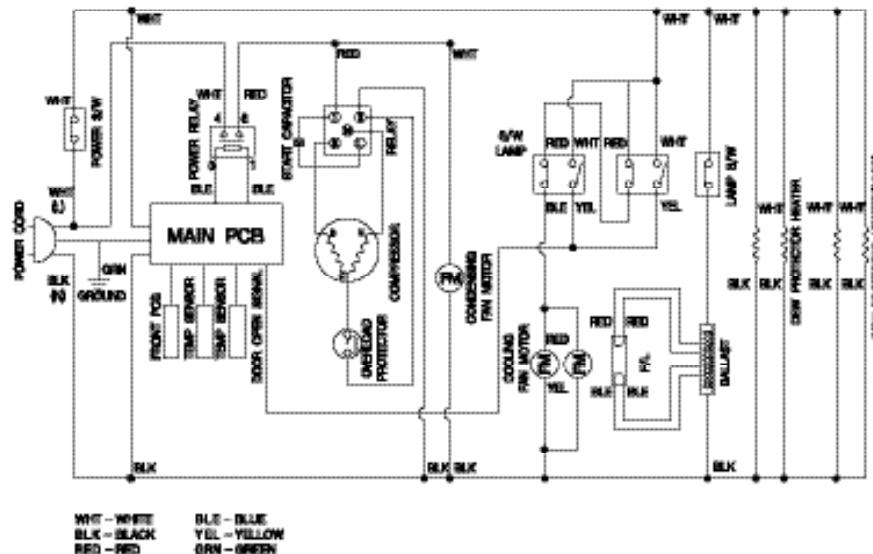
2-2. FREEZER
MSF-23NM

WIRING-DIAGRAM MSF-23NM



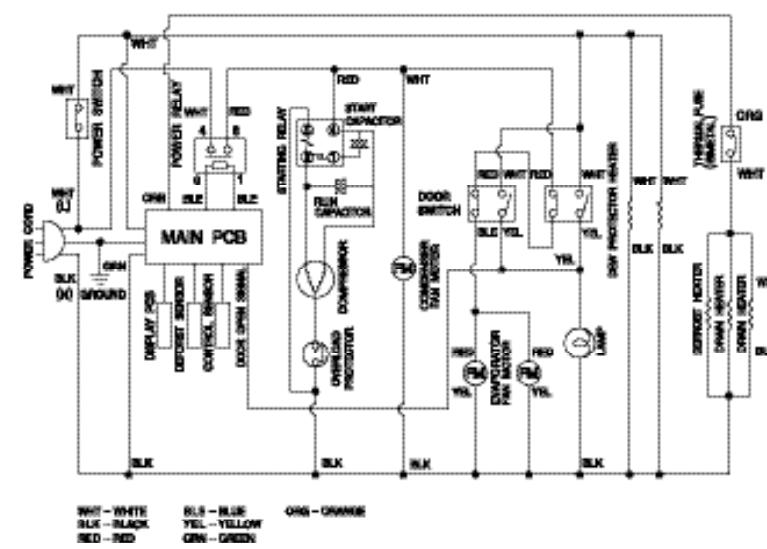
MSR-49G-2

WIRING-DIAGRAM MSR-49G-2



MSF-49NM

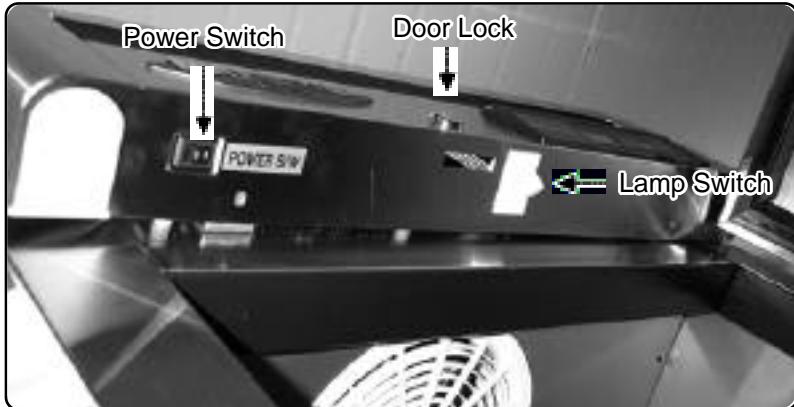
WIRING-DIAGRAM MSF-49NM



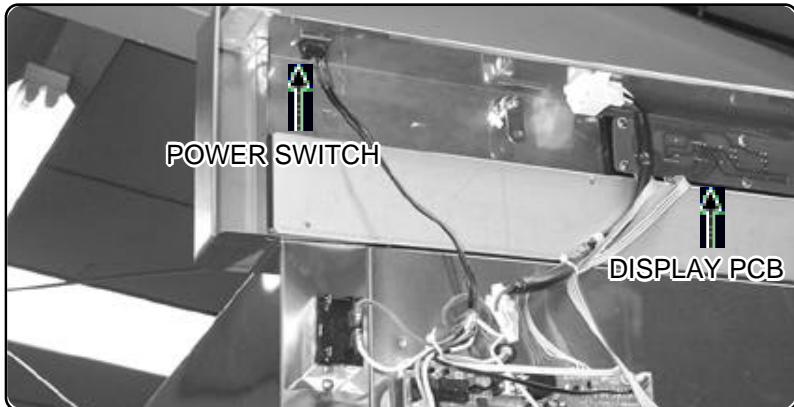
3 PART DETAILS

PART DETAILS

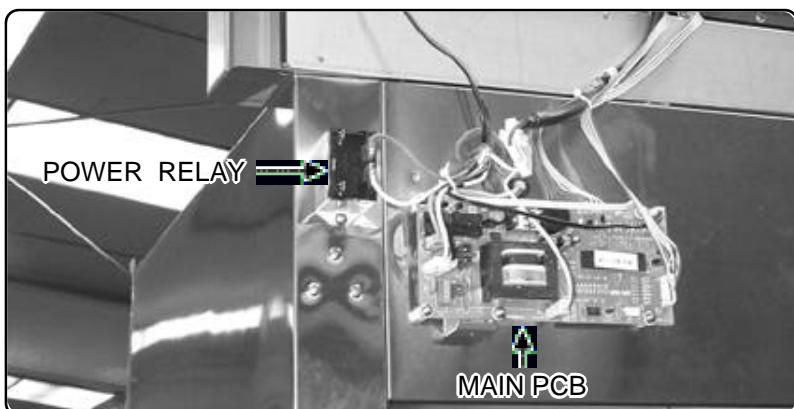
3-1. TOP PANEL



Display PCB



Main PCB



3-2. COMPRESSOR COMPARTMENT

Condensing Unit



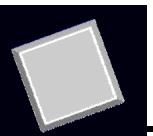
MSR-49NM



MSF-49NM



MSF-23NM, MSR-23NM



PART DETAILS

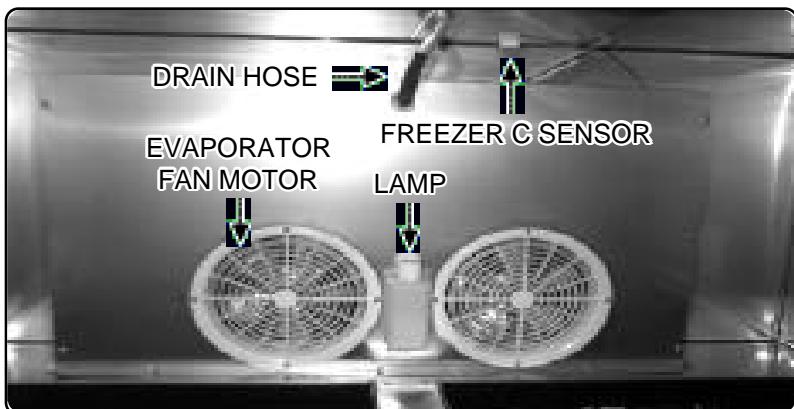
3-3. DOOR

Door Gasket

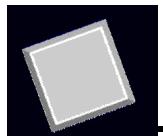
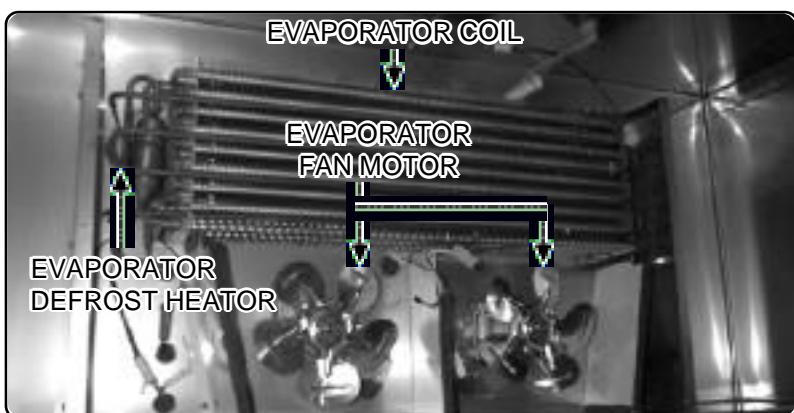


3-4. COOLING COMPARTMENT

Evaporator Housing (Duct) (MSF-49NM)

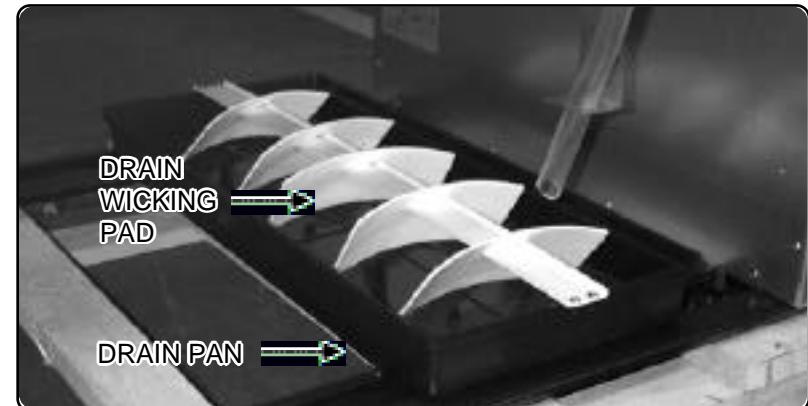


Freezer Evaporator(MSF-49NM)



PART DETAILS

Drain Pan



Condenser Fan Motor Assembly



Compressor Capacitor(Running & Starting Capacitor)



PART DETAILS

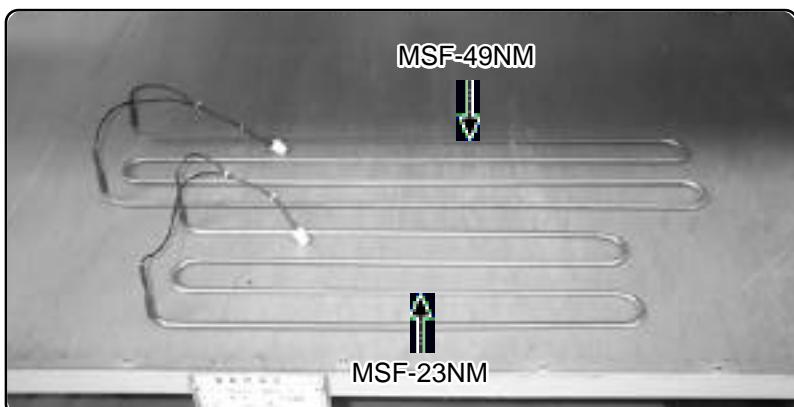
Evaporator Housing (Duct) (MSF-23NM, MSR-23NM Type)



Freezer Evaporator (MSF-23NM)



Evaporator Defrost Heater (MSF-49NM, MSF-23NM)



4-1. COMPRESSOR

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Refrigerant		R-134a		R-404a		R-134a
Voltage			115 V / 60 Hz			
Comp. Model	SK182C-L2U	SK1A1C-L2W	AJA2425ZXA	SK1A1C-L2W	AKA4476YXA	
Part code	R7439-010	R7439-110	R7439-030	R7439-110	R7439-150	
Starting type	RSCR	CSR	-	CSR	-	

4-2. COMP. RELAY

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage			115 V / 60 Hz			
Relay Model			G7L-1A-TUB			
Part code			R7253-040			

4-3. DRYER

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Refrigerant		R-134a		R-404a		R-134a
Spec		36GR		36GR		36GR
Part code		R2183-032		R2183-043		R2183-032

4-4. CAPACITOR

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage			115 V / 60 Hz			
Running	250VAC 12uF	250VAC 12uF			250VAC 12uF	
Part code	R7543-030	R7543-110			R7543-110	
Starting		125VAC 125uF			125VAC 125uF	
Part code		R7543-100			R7543-100	

4-5. EVAPORATOR FAN MOTOR

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage			115 V / 60 Hz			
Motor Model			IS-4420DADY			
Part code			R7423-031			

MAIN COMPONENTS

4-6. CONDENSER FAN MOTOR

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage					115 V / 60 Hz	
Motor Model					SR-043	
Part code					R7423-020	

4-7. DEFROST HEATER

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage					115 V / 60 Hz	
Spec			445 W	600 W		
Part code			R7303-400	R7303-410		

4-8. LAMP

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage					115 V / 60 Hz	
Spec			25 W		FLUORESCENT 32W/865RS	
Part code			R7494-010		R7494-150	

4-9. MAIN PCB

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage					115 V / 60 Hz	
Part code	R7103-260		R7103-250		R7103-260	

4-10. DISPLAY PCB

MODEL	MSR-23NM	MSR-49NM	MSF-23NM	MSF-49NM	MSR-23G-1	MSR-49G-2
Voltage					115 V / 60 Hz	
Part code					R7113-190	

4-11. BALLAST

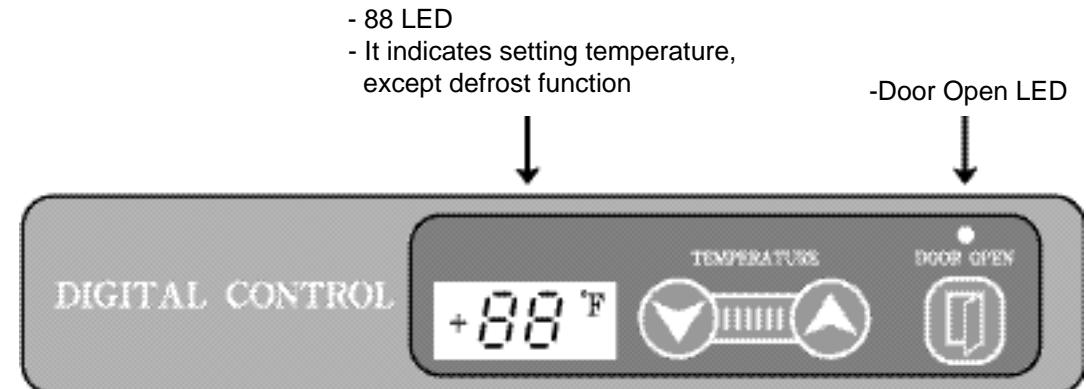
MODEL	MSR-23G-1	MSR-49G-2
Voltage		120V / 60Hz
Spec		32W
Part code		R7553-011

5

ELECTRONIC CONTROL INSTRUCTIONS

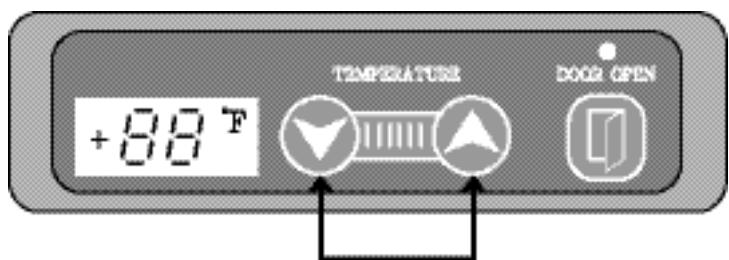
5-1. FREEZER CONTROL

5-1-1. How to use the display PCB panel



- 88 LED
- It indicates setting temperature, except defrost function
- Door Open LED

5-1-2. Manual Defrost Function

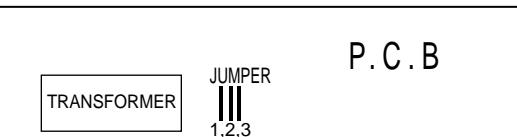


Press temperature setting UP/DOWN key for 2 seconds at the same time, manual defrost mode will start.

If you press UP/DOWN key for 2 seconds again on defrosting manual defrost will be cancelled and it will revert to normal mode after 10 minutes of pause(Display panel indicates "DF" for pause period)

5-1-3. FUNCTION TABLE

No	Function	Controlled Part	Description
1	Initial Operation		1. 88 LED displays inside temperature 2. Begin to run immediately on the higher than 50 and begin to run after 5 minutes pause on the lower than 50 .
2	Temperature Control	Compressor LED	1. The temperature can be changed by pushing up/down buttons. 2. 88 LED displays inside temperature 3. Buzzer buzzes 1time whenever a button is pressed 4. Compressor automatically turns on and off by C-sensor (Except error mode) 5. Comp. on/off temperature () Setting 5.0 3.0 1.0 -1.0 -2.0 Comp On 5.3 3.5 0.8 -1.3 -1.8 Comp OFF -2.5 -4.7 -7.4 -9.4 -10.6 ----- Setting -3.0 -5.0 -7.0 -9.0 Comp On -3.1 -4.9 -5.8 -7.6 Comp OFF -11.2 -13.0 -13.9 -15.7
3	Defrost Function	Heater Compressor	1. Defrost Cycle : It can be set 8Hr or 6Hr by OPTION JUMPER (JP3)  2. The condition of DEFROST operation -It runs regularly according to the defrost cycle with adding up the plug in time. -When the defrost starting time comes, COMPRESSOR must be turned off and the defrost operation cycle begins to run according to the conditions as the below 1 and 2 after checking the temperature by DEFROST SENSOR. Condition 1 (In case the temperature checked by DEFROST SENSOR is low than 23); Defrost Heater (Max. 40Min. running) runs by that time DEFROST-SENSOR sensor 53 and COMPRESSOR runs after 10minutes pauses.

No	Function	Controlled Part	Description				
4	MAIN PCB	FREEZER / REFRIGERATOR DEFROST TIME	1. It can be set as below according to the connection of JUMPER (J1,J2,J3)in the main PCB.				
				JUMPER NO.	JUMPER FUNCTION	CONNECTION	DISCONNECTI-ON
			JP1	Unit of the Temperature	Indicated to Temperature	Indicated to Temperature	
			JP2	Mode of the control to Refrigerator / Freezer	The controller of Freezer	The controller of Refrigerator	
			JP3	Control of Defrost cycle	8 Hr	6 Hr	Applied to the Freezer model only.

ERROR CODE (FREEZER)

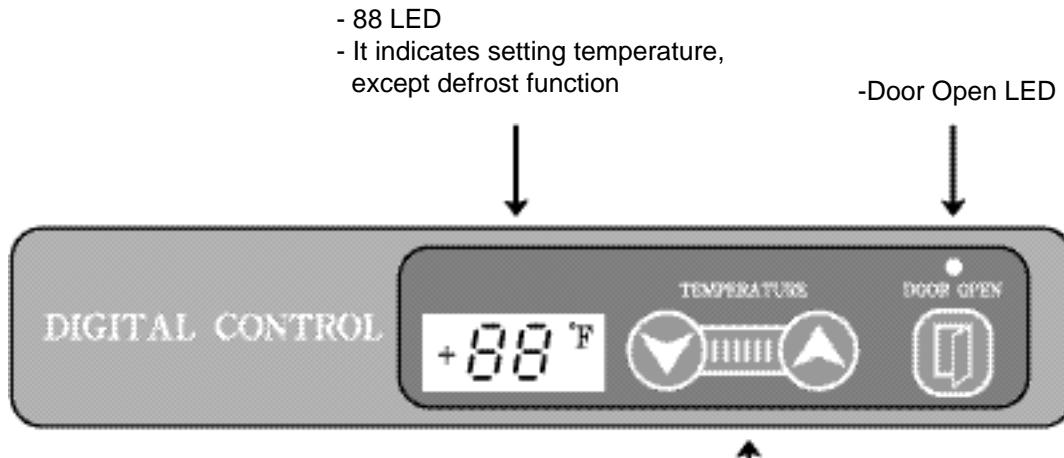
Code	Content	Perception Method	Refrigeration state
cS	D-sensor	- short circuit	- Normal operation
		- wire disconnection	- Defrost Heater ON : 20 MINUTES
cO	C-sensor	- short circuit	- Time control Comp ON : 10 MINUTES
cS		- wire disconnection	
cO	D-sensor	- short circuit	Comp OFF : 6 MINUTES
		- wire disconnection	

SENSOR DESCRIPTION

Sensor	Model	Role	Wire Color
D-sensor	Freezer	Detect Eva coil's temp. to terminate defrosting	WHT
C-sensor	Freezer	Detect inside air temp. to operate comp and to indicate the inside temp. on the display PCB	BLK
	Refrigerator	Detect Eva coil's temp. to operate comp	BLK
T-sensor	Refrigerator	Detect inside air temp. to indicate the inside temp on the display PCB	WHT

5-2. REFRIGERATOR CONTROL

5-2-1. HOW TO USE THE DISPLAY PCB PANEL



-Temperature can be controlled by the user.
-Factory setting is at level "35 ". Setting can be changed by pressing up/down button.

5-2-2. FUNCTION TABLE

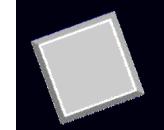
No	Function	Controlled Part	Description																																	
1	Initial Operation		1. 88 LED displays inside temperture 2. Begin to run immediately on the higher than 41 and begin to run after 5 minutes pause on the lower than 41 .																																	
2	Temperature Control	Compressor LED	1. The temperature can be changed by pushing up/down buttons. 2. 88 LED displays inside temperture 3. Buzzer buzzes 1time whenever a button is pressed 4. Compressor automatically turns on and off by C-sensor (Except error mode) 5. Comp. on/off temperature () <table border="1"> <tr> <td>Setting</td> <td>39</td> <td>38</td> <td>37</td> <td>36</td> <td>35</td> </tr> <tr> <td>Comp On</td> <td>39.0</td> <td>39.0</td> <td>39.0</td> <td>39.0</td> <td>39.0</td> </tr> <tr> <td>Comp OFF</td> <td>30.2</td> <td>28.4</td> <td>27.5</td> <td>27.0</td> <td>25.0</td> </tr> </table> <hr/> <table border="1"> <tr> <td>Setting</td> <td>34</td> <td>32</td> <td>30</td> <td>28</td> </tr> <tr> <td>Comp On</td> <td>39.0</td> <td>39.0</td> <td>39.0</td> <td>39.0</td> </tr> <tr> <td>Comp OFF</td> <td>23.0</td> <td>21.2</td> <td>19.0</td> <td>17.6</td> </tr> </table>	Setting	39	38	37	36	35	Comp On	39.0	39.0	39.0	39.0	39.0	Comp OFF	30.2	28.4	27.5	27.0	25.0	Setting	34	32	30	28	Comp On	39.0	39.0	39.0	39.0	Comp OFF	23.0	21.2	19.0	17.6
Setting	39	38	37	36	35																															
Comp On	39.0	39.0	39.0	39.0	39.0																															
Comp OFF	30.2	28.4	27.5	27.0	25.0																															
Setting	34	32	30	28																																
Comp On	39.0	39.0	39.0	39.0																																
Comp OFF	23.0	21.2	19.0	17.6																																

ERROR CODE

Code	Content	Perception Method	Refrigeration state
¬S	T-sensor	- short circuit	- Normal operation
¬O		- wire disconnection	
	C-sensor	- short circuit	- Time control Comp ON : 10 MINUTES Comp OFF : 20 MINUTES
		- wire disconnection	
¬S	C-sensor	- short circuit	Comp ON : 10 MINUTES Comp OFF : 20 MINUTES
¬O	T-sensor	- wire disconnection	

6

REPLACEMENT OF MAIN COMPONENTS



REPLACEMENT OF MAIN COMPONENTS

6-1. TOP PANEL PARTS

- MAIN PCB
- LOCK ASSEMBLY or POWER SWITCH
- DOOR SWITCH

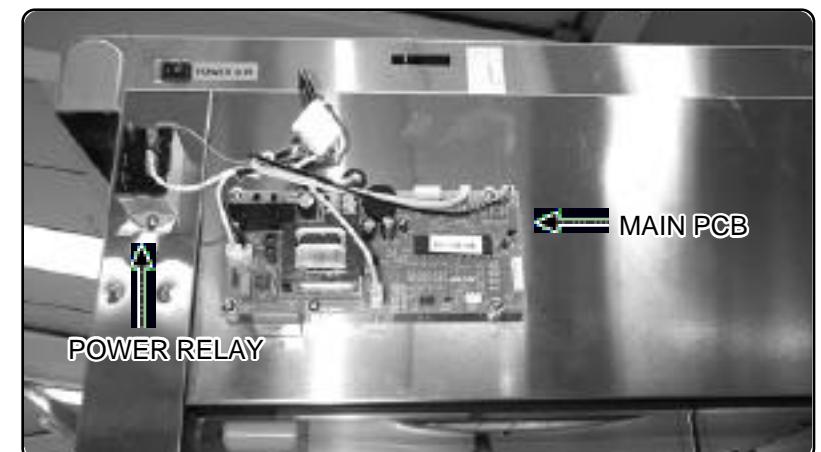
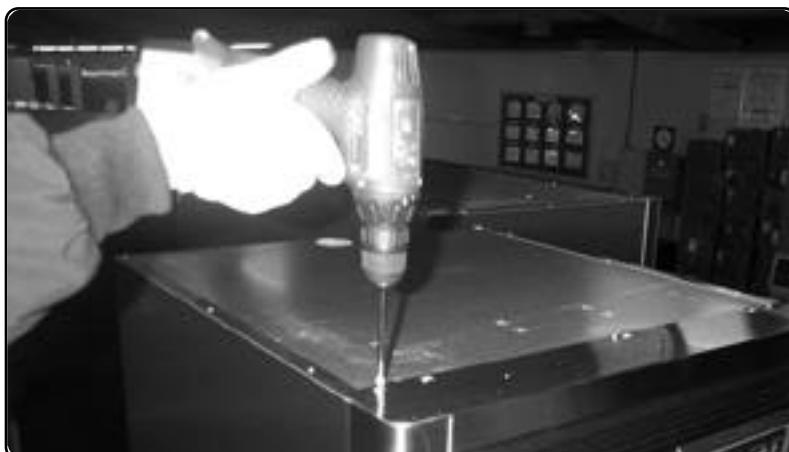
A. Untie the screws located on top grille panel.



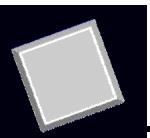
B. Untie the screws located on bottom of top panel.
caution : When unscrewing, hold the top panel.
Panel may fall & cause injury.



C. Place the top panel on top of the cabinet.
D. You can replace POWER-RELAY and MAIN PCB



MSF-23NM

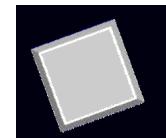
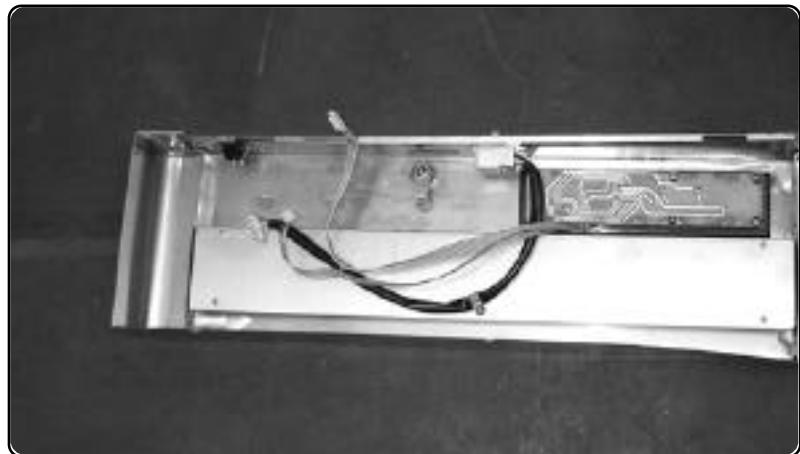


REPLACEMENT OF MAIN COMPONENTS

E. Pull out the harness located back of top panel.

You can separate top panel out of the unit.

You can replace power switch, lamp switch and display PCB.



REPLACEMENT OF MAIN COMPONENTS

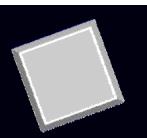
6-2 REPLACING DOOR

- A. Disassemble top panel as described section 6-1 A,B
- B. Remove bottom grille by unscrewing the four screws located on each side of bottom grille.

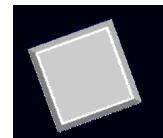


- C. Open the capacitor cover.
Disconnect the Mullion Heater





REPLACEMENT OF MAIN COMPONENTS



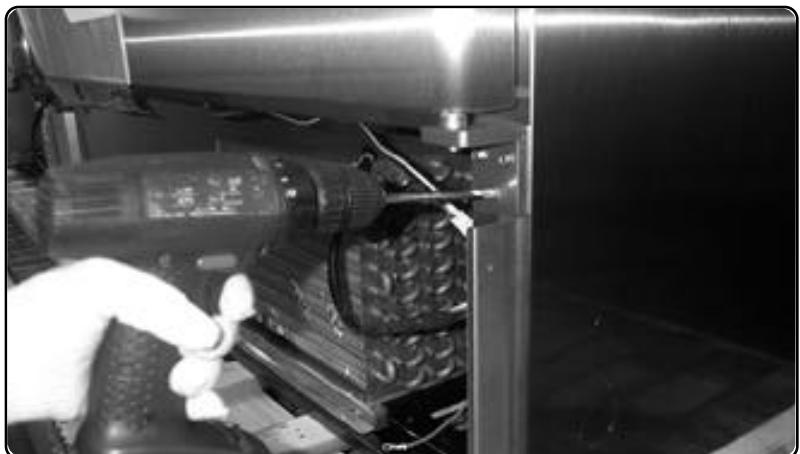
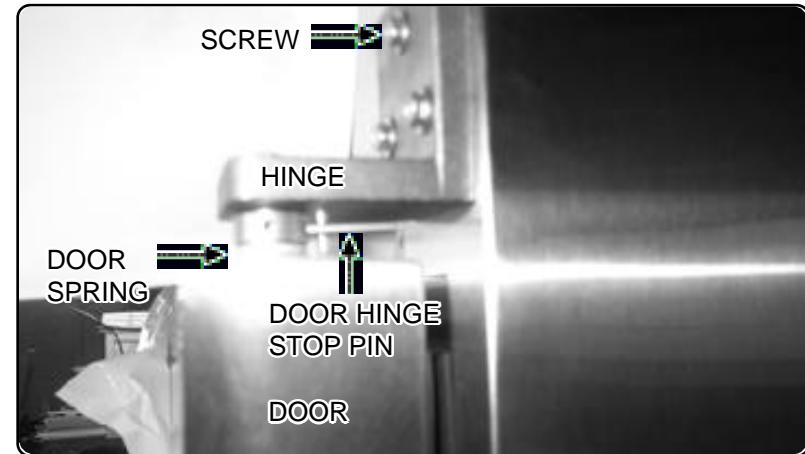
REPLACEMENT OF MAIN COMPONENTS

D. Untie the hinge.



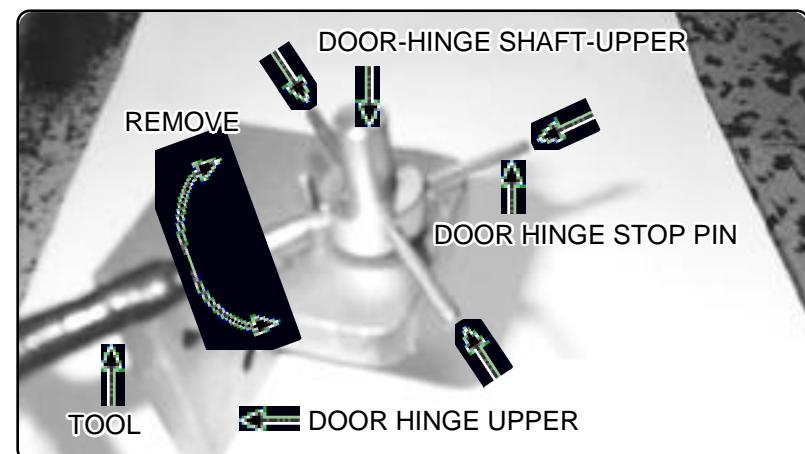
6-3 DOOR SPRING ADJUSTMENT

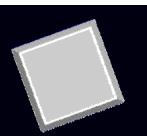
A. Detailed structure of DOOR-HINGE



B. Coordinated principle of DOOR TENSION

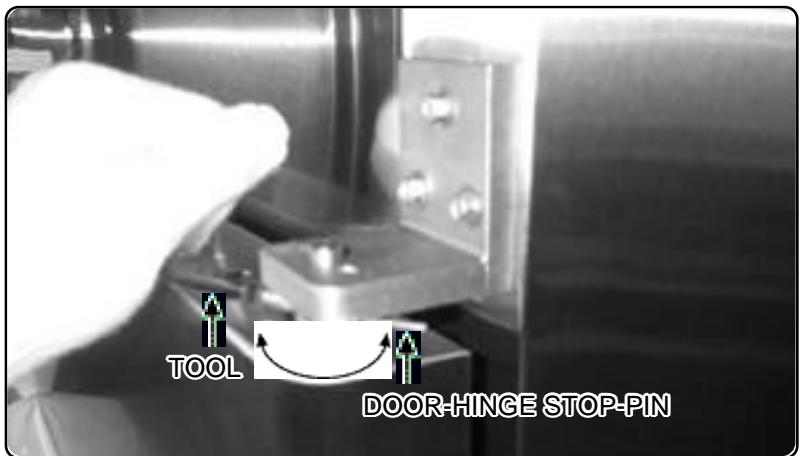
After putting Tool for revolving DOOR-HINGE STOP-PIN HOLE, Insert DOOR-HINGE STOP-PIN into the hole after revolving up to the requested TENSION.



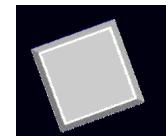


REPLACEMENT OF MAIN COMPONENTS

C. Remove the door hinge stop pin



B. Place the door hinge stop pin and adjust the strength of the door spring.



REPLACEMENT OF MAIN COMPONENTS

6-4. REVERSIBLE-DOOR ASSEMBLING METHOD

APPLIED MODEL : MSF-23NM, MSR-23NM

1. Taking apart TOP GRILL and GRILL ASSEMBLY

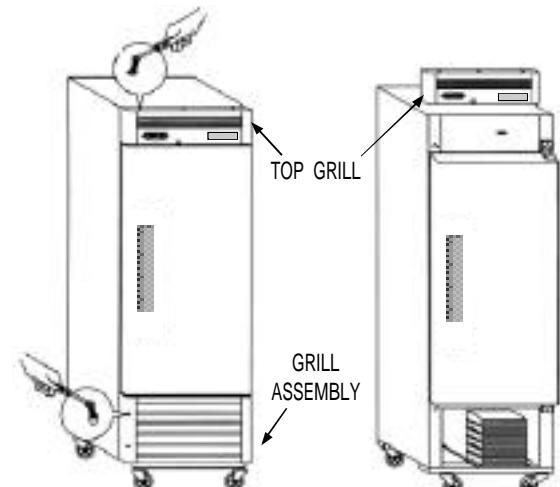
1) Take apart TOP GRILL

after eliminating screw connected
Upper or downward located
in the PICTURE (A)

2) Take apart GRILL

after eliminating the screw connected
Left and right side located
in the PLCTURE (A)

Attention : Heed not to damage Electricity
wire and not to fall top-grill
from the upper.
Also be careful the sharp
edges during working.

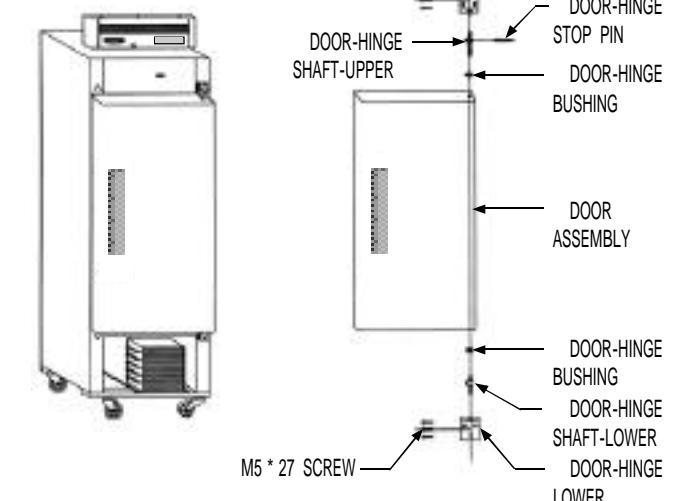


PICTURE A

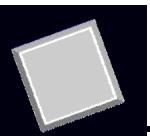
2. Taking apart of DOOR-ASSEMBLY

1) Take apart ~ in order at the PICTURE (B)

Attention : Heed the elasticity
when eliminating the
PIN and the weight
during taking apart
DOOR ASSEMBLY.



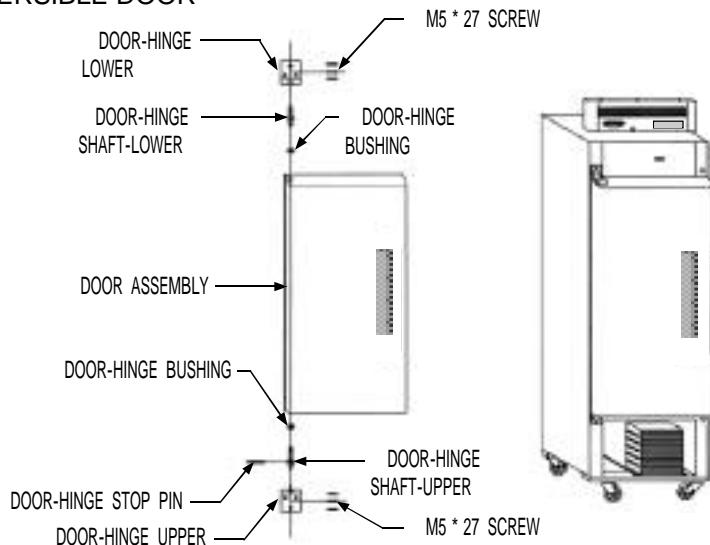
PICTURE B



REPLACEMENT OF MAIN COMPONENTS

3. Assembling method of REVERSIBLE DOOR

- 1) After reversing 180 degree
DOOR ASSEMBLY of , have the HANDLE be the requested side.
- 2) Assemble as the following order



PICTURE C

-After assembling , assemble

-Insert into

-After inserting , fix

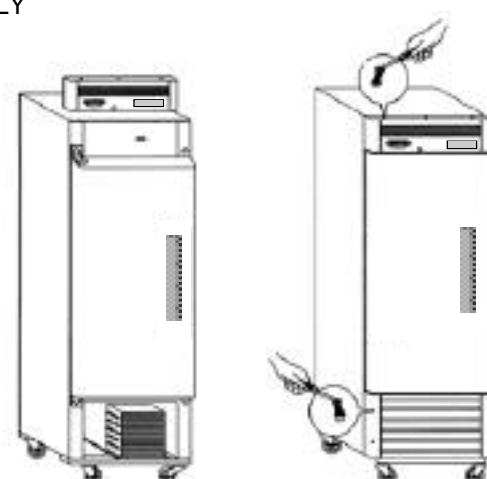
-Insert reversely for suitable spring elasticity

Attention : When screw connected, should well be connected to maintain sufficient sustain

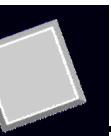
4. Assembling TOP GRILL and GRILL ASSEMBLY

- 1) Connect the screw at the

location on the top
and bottom of the top grill



PICTURE D

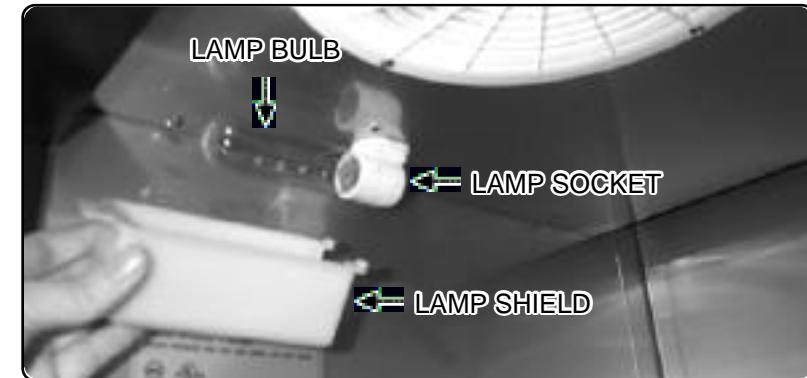


REPLACEMENT OF MAIN COMPONENTS

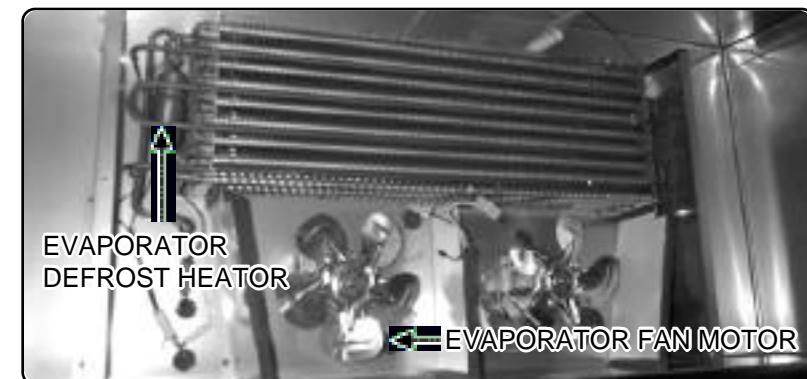
6-5. REFRIGERATION COMPARTMENT'S PARTS

- LAMP BULB, LAMP SHIELD
- EVAPORATOR FAN MOTOR
- D-SENSOR, C-SENSOR, T-SENSOR
- EVAPORATOR COIL
- EVAPORATOR DEFROST HEATER

A. Disassemble lamp shield

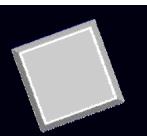


B. Disassemble duct



C. Pull out the lamp

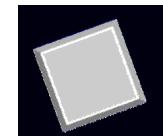




REPLACEMENT OF MAIN COMPONENTS

D. Replacing evaporator fan motor

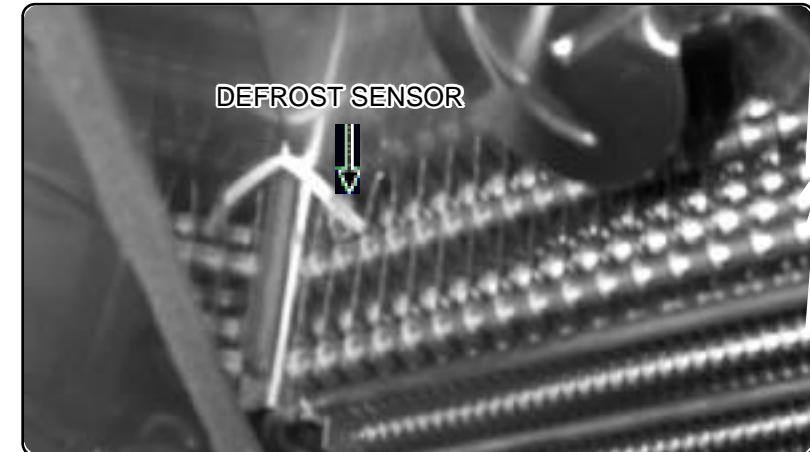
- D-1. Disconnect the fan motor's harness.
- D-2. Untie the four screws which located on bottom of fan motor



REPLACEMENT OF MAIN COMPONENTS

E-2. DEFROST-sensor of Freezer

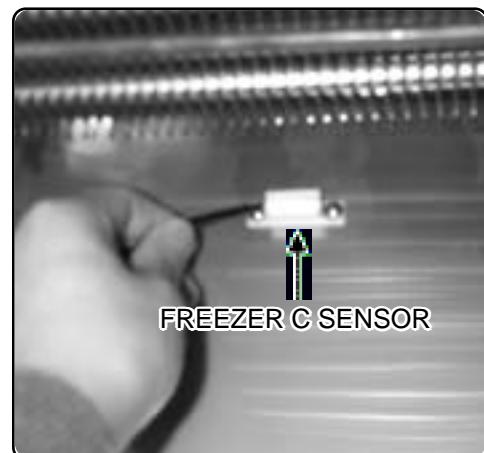
Disassemble the DEFROST-sensor from the evaporator



E. Replacing sensor

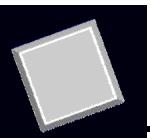
E-1. FREEZER C-sensor of

Untie as illustrated below and pull-out the FREEZER C-sensor from the cover.



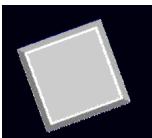
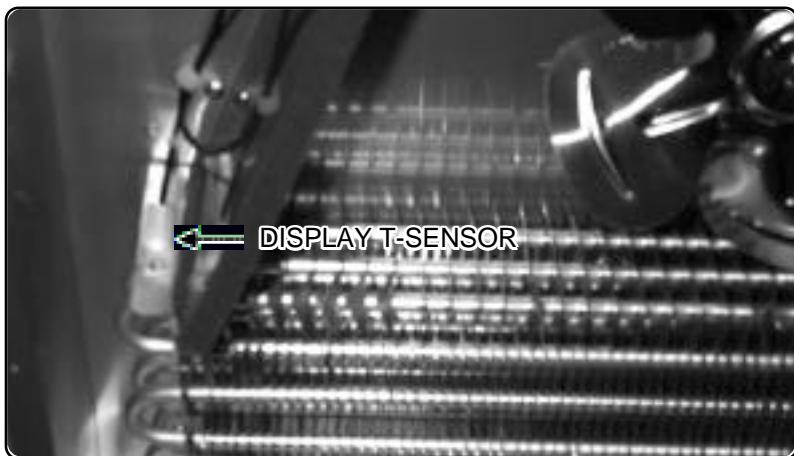
E-3. C-sensor of Refrigerator





REPLACEMENT OF MAIN COMPONENTS

E-4. T-Sensor (Temperature Display Sensor) of Refrigerator



REPLACEMENT OF MAIN COMPONENTS

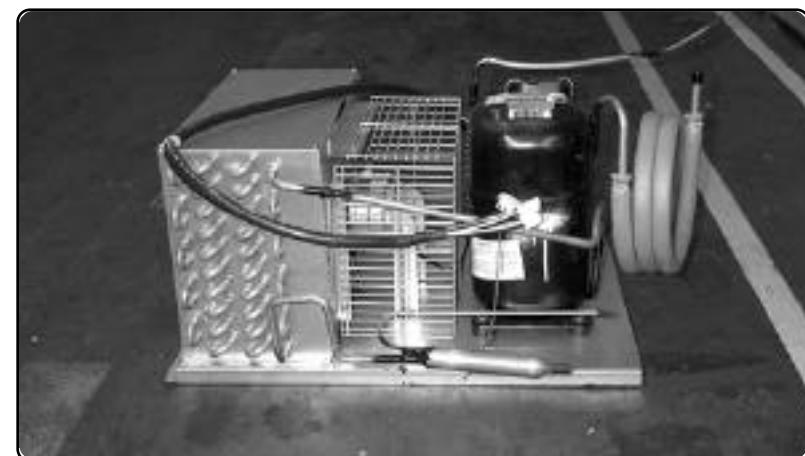
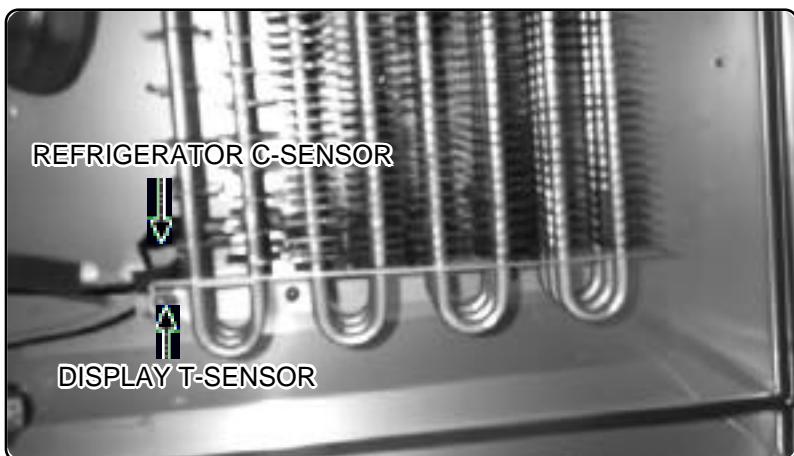
6-6. CONDENSING UNIT

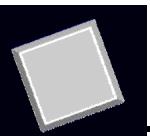
- Condensing units : Compressor, Condenser Fan Motor, Condenser Coil, Condenser Dryer.
- Others : Power-cord, Drain pan

A. Untie two screws as below.



B. Pull-out the condensing unit (MSF-49 NM)





REPLACEMENT OF MAIN COMPONENTS

6-7. LIGHTING-PARTS

A. MSR-23G-1



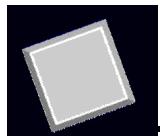
1. Untie three screws securing the Lamp Reflection.



2. Separate the Lamp Reflection



3. Separate the Lamp out of the Lamp socket and replace it.



REPLACEMENT OF MAIN COMPONENTS

B. MSR-49G-2



1. Separate the Shelves



2. Separate the Lamp Socket

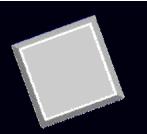


3. Take out the Doors and separate the Lamp from the Lamp Holder.



4. Separate the Lamp shield End Cap





REPLACEMENT OF MAIN COMPONENTS

C. BALLAST

1. Untie four screws securing the sign frame End separate Sign Frame End.
2. Separate connector of the ballast

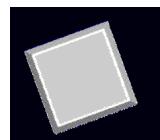


3. Untie two screws for separating the Ballast.



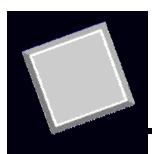
PART-LIST

Part name	Code	Description	Solid		Glass			
			R23	R49	F23	F49	R23	R49
CASTER								
CASTER	R3323-010	SPCC 4"	2	2	2	2	2	2
CASTER BRAKE	R3323-020	SPCC 4"	2	2	2	2	2	2
COMPRESSOR								
COMPRESSOR	R7439-030	AJA2425ZXA			1			
COMPRESSOR	R7439-110	SK1A1C-L2W		1	1		1	
COMPRESSOR	R7439-010	SK182C-L2U	1					
COMPRESSOR	R7439-150	AKA4476YXA						1
COMPRESSOR RUN CAPACITOR	R7543-110	250VAC 12UF		1	1			
COMPRESSOR START CAPACITOR	R7543-100	125VAC 125UF		1	1			
COMPRESSOR RUN CAPACITOR	R7543-030	250VAC 12UF	1					
COMPRESSOR RELAY HARNESS	R7373-770	AWG18			1			
COMPRESSOR RELAY HARNESS	R7373-780	AWG18	1					
COMPRESSOR RELAY HARNESS	R7373-790	AWG18				1		
COMPRESSOR RELAY HARNESS	R7373-800	AWG18		1				
COMPRESSOR RELAY HARNESS	R7283-070	AWG18						1
COMPRESSOR RELAY HARNESS	R7283-080	AWG18					1	
POWER-CORD	R7363-060	3000MM	1	1	1	1	1	1
CONDENSER								
CONDENSER COIL	R2272-012				1			
CONDENSER COIL	R2202-030	4.76 [±] 13340		1				
CONDENSER COIL	R2202-031	4.76 [±] 18960	1	1	1		1	
CONDENSER COIL	R2273-021							1
CONDENSER DRYER	R2183-032	25.4 [±] 169 [±] 0.635	1	1	1		1	1
CONDENSER DRYER	R2183-043	25.4 [±] 130 [±] 0.635			1			
CONDENSER FAN								
CONDENSER FAN MOTOR	R7423-020	SE-043 9W CCW 1550RPM	1	1	1	1	1	1
CONDENSER FAN MOTOR BLADE	R3729-020	AL3004H14 9" CCW T1.0	1	1	1	1	1	1
CONDENSER FAN MOTOR BRACKET	R3313-260	SBHG1-0 T2.0 [±] 164	1	1	1	1	1	1
DRAIN								
DRAIN PAN	R3743-060	ABS BLK	1	1	1		1	
DRAIN PAN	R3742-070	ABS BLK		1		1		1
DRAIN WICKING BAR	R3853-230	PP WHT T2.0 [±] 40 [±] 569	1	1	1		1	
DRAIN WICKING BAR	R3853-240	PP WHT T2.0 [±] 40 [±] 657		1		1		1
DRAIN WICKING PADS	R1154-101	PP T2.5 [±] 99 [±] 103	1	1		1		1
DRAIN WICKING PADS	R1154-020	PP T2.5 [±] 83 [±] 180		1		1		1



PART-LIST

Part name	Code	Description	Solid		Glass			
			R23	R49	F23	F49	R23	R49
EVAPORATOR								
EVAPORATOR COIL	R2263-044	CU+AL			1	1		
EVAPORATOR COIL	R2263-034	CU+AL		1				
EVAPORATOR COIL	R8613-342	CU+AL			1	1		
EVAPORATOR COIL	R8613-353	CU+AL	1					
EVAPORATOR DEFROST HEATER	R7303-410	SUS304 ⌀ 8 600 W 22.0			1			
EVAPORATOR DEFROST HEATER	R7303-400	SUS304 ⌀ 8 445 W 29.7			1			
EVAPORATOR DRAIN PAN HEATER	R7303-180	PVC 105 90W 147			1			
EVAPORATOR DRAIN PAN HEATER	R7303-170	PVC 105 90W 147			1			
SENSOR BRACKET	R3314-190	P.P, WHT	1	1	1	1	1	1
EVAPORATOR THERMAL FUSE (BIMETAL)	R7253-050	80 ± 4 G4A00			1	1		
EVAPORATOR FAN MOTOR	R7423-031	IS-4420 1650±150RPM	1	1	1	2	1	2
EVAPORATOR FAN MOTOR BLADE	R3729-010	8" C.C.W	1	1	1	2	1	2
EVAPORATOR FAN MOTOR BRACKET	R3204-360	STS-304 T1.0 ⌀ 120 ⌀ 90	1	1	1	2	1	2
FREEZER SENSOR	R7213-081	YELLOW			1	1		
DEFROST SENSOR	R7213-101	WHITE			1	1		
REFRIGERATOR SENSOR	R7213-091	BLACK	1	1			1	1
DISPLAY SENSOR	R7213-111	WHITE	1	1			1	1
TOP PANEL								
TOP PANEL ASSEMBLY	R8182-130			1	1			
TOP PANEL ASSEMBLY	R8182-120		1	1				
TOP PANEL ASSEMBLY	R8182-120						1	
TOP PANEL ASSEMBLY	R8182-130					1		
FREEZER BRAND LOGO	R5133-150			1	1			
REFRIGERATOR BRAND LOGO	R5133-140		1	1			1	1
FREEZER MAIN PCB	R7103-250				1	1		
REFRIGERATOR MAIN PCB	R7103-260		1	1			1	1
CONTROL BOARD HOUSING	R7113-190		1	1	1	1	1	1
DISPLAY PCB	R7113-190	20 ⌀ 220 T1.5	1	1	1	1	1	1
DISPLAY PCB FILM	R4113-370	PC-SHEET	1	1	1	1	1	1
SUPPORTER PCB	R3084-010	NYLON66	6	6	6	6	6	6
POWER RELAY	R7253-040	OMRON G7L-1A-TUB	1	1	1	1	2	2
DOOR SWITCH	R7203-020	125V 1.5A	1	2	1	2	1	2
DOOR SWITCH HARNESS	R7373-423	AWG18		1		1		
DOOR SWITCH HARNESS	R7373-433	AWG18	1		1			
DOOR LOCK	R3739-010		1	2	1	2	1	2



PART-LIST

Part name	Code	Description	Solid		Glass			
			R23	R49	F23	F49	R23	R49
BOTTOM GRILLE								
BOTTOM GRILLE ASSEMBLY	R8182-080				1		1	1
BOTTOM GRILLE ASSEMBLY	R8182-092					1	1	1
SHELF								
SHELF CLIP	R3313-151				12	24	12	24
SHELF	R3233-072				3		3	
SHELF	R3233-063				6		6	
SHELF (GLASS)	R3233-180							3
SHELF L (GLASS)	R3233-160							3
SHELF R (GLASS)	R3233-170							3
SHELF STANDARD	R3373-121				4	8	4	8
DOOR								
DOOR ASSEMBLY	R8272-220				1	1		
DOOR ASSEMBLY	R8272-170					2	2	
GLASS DOOR ASSEMBLY L	R8172-650							1
GLASS DOOR ASSEMBLY R	R8172-630							1
GLASS DOOR ASSEMBLY	R8172-640							1
DOOR GASKET	R3903-354	RD-PVC BLACK	1	2	1	2		
MULLION	R8163-031	30W PINK		1				
MULLION	R8163-121	38W YELLOW				1		
DOOR HINGE TOP	R3394-120	AL	1	2	1	2		
DOOR HINGE BOTTOM	R3394-130	AL	1	2	1	2		
DOOR HINGE WASHER	R3034-020	18 T2.2	2	4	2	4		
DOOR HINGE STOP PIN	R3044-040	3 ⌀ 30	1	2	1	2		
LAMP								
LAMP BULB	R7394-010	25W, E26	1	1	1	1		
LAMP SHIELD	R3813-130	MIPS (HR-3370)	1	1	1	1		
LAMP SOCKET	R7393-020	660W 250V	1	1	1	1		
FLUORESCENT LAMP								
FLUORESCENT	R7394-150	PHILIPS 32W/865RS					1	1
BALLAST	R7553-010	ADVANCE (R-1P32-TP)					1	1
LAMP GUARD	R3894-030	PP					1	1
GUARD SOCKET	R3814-550	ABS V0					2	2
LAMP SOCKET	R7393-180	ABS V0					2	
LAMP SOCKET	R7393-170	ABS V0						2